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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/527,856

04/15/2006

Edward E. Heald

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Intellectual Property Section  
P.O. Box 1967  
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EXAMINER

HAUTH, GALEN H

ART UNIT

PAPER NUMBER

4111

MAIL DATE

DELIVERY MODE

05/22/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/527,856	<b>Applicant(s)</b> HEALD ET AL.	
	<b>Examiner</b> GALEN HAUTH	<b>Art Unit</b> 4111	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.  
     4a) Of the above claim(s) 7-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03/15/2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group 1, claim(s) 1-6, drawn to a pultrusion apparatus.

Group 2, claim(s) 7-9, drawn to a method for using the pultrusion apparatus.

2. The inventions listed as Groups 1 and 2 do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The common technical feature between the two groups is the removable and replaceable insert of one part of the pultrusion die apparatus. The feature was found to not define over the prior art *a posteriori* in view of Spoo et al. (PN 5116450). Due to lack of a common **special** technical feature the two groups are subject to restriction.

During a telephone conversation with Timothy Stevens on 05/13/2008 a provisional election was made without traverse to prosecute invention I, claims 1-6.

Affirmation of this election must be made by applicant in replying to this Office action.

Claims 7-9 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

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remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

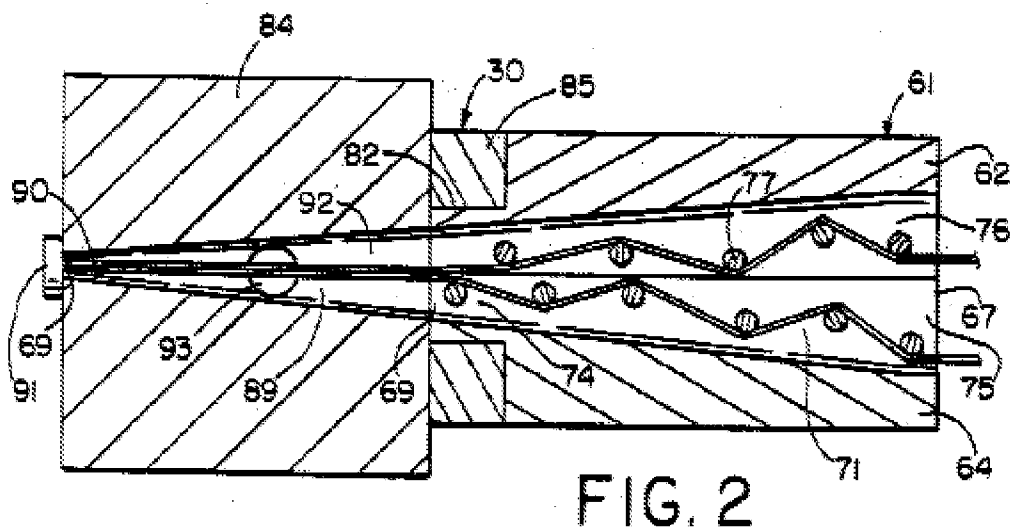
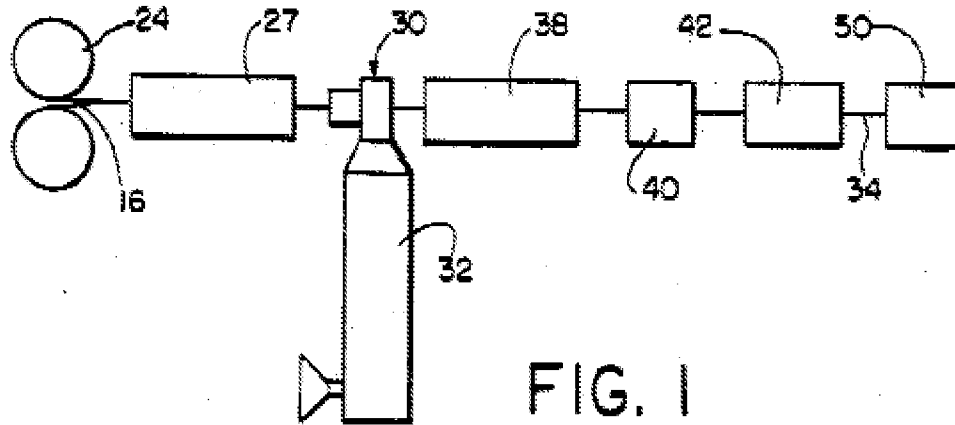
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Azari (PN 5268050).

a. Azari teaches a pultrusion device comprising taking fibers from spools, preheating the fibers in an oven, feeding the fibers into a die, delivering a thermoplastic melt to the fibers impregnating the fibers, forming a consolidated fiber product, and cooling the product (col 5 ln 37-44). The claim language of a modular pultrusion die is interpreted to not require positively to have all claimed sections to be housed in a single molding die, hence does not preclude a series of communicating spaced sections. The pultrusion device taught by Azari is shown in the figures below. In Figure 1 is a preheat station (27); a die (30) which holds the infeed, reduction, and shaping section; and, a cooling section (38) in that order. In Figure 2 is a detailed view of the die (30) in which comprises a fiber infeed section (76) in which pins (77) are removable (col 6 ln 61-65) and replaceable (col 7 ln 1-4), a resin infeed and impregnation section (93), a

reduction section (90), and a shaping and consolidation section (91).

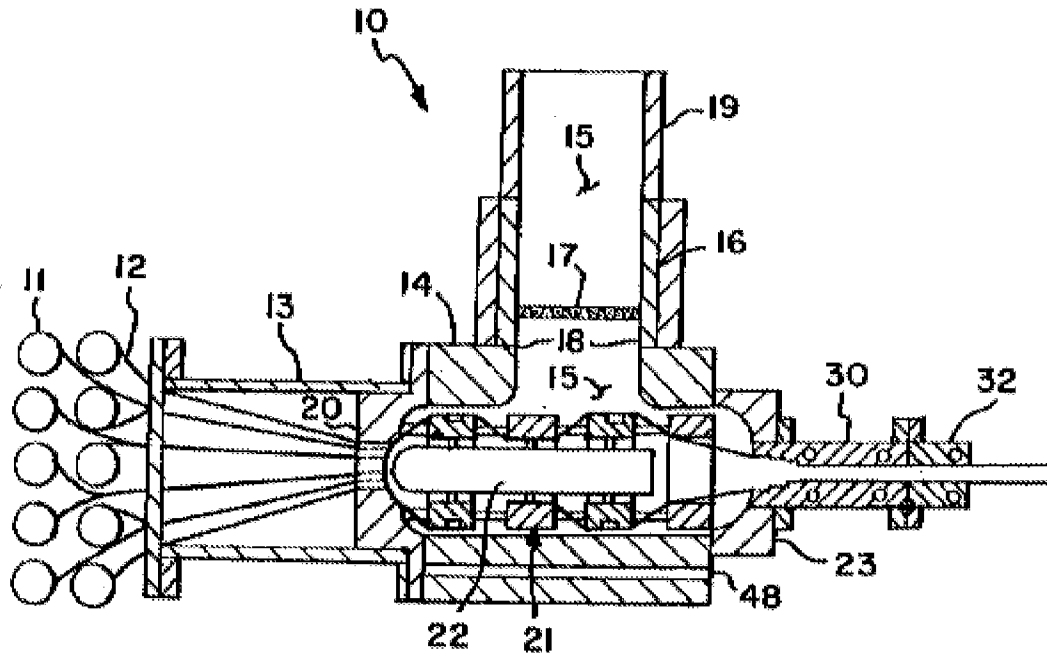


6. Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Wilson (PN 5540797).

a. Wilson teaches a pultrusion apparatus in which fibers are pulled through a resin impregnation chamber, shaped and cooled. Referring to the figure below, Wilson teaches having a fiber preheating section (13), a fiber infeed section (20)

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which is removable (col 4 ln 48-49) and therefor replaceable, a resin impregnating section (14), a reduction section (23), a consolidation and shaping section (30), and a cooling section (32).



### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1, 3, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards et al. (PN 5891560) in view of Spoo et al. (PN 5116450).

a. With regards to claim 1, Edwards teaches a pultrusion device in which fibers are pulled from a storage rack into a preheater of infrared ceramic heaters (col 3 ln 21-23), pulled into a pretension unit to spread the fibers out to a desired arrangement and tension them prior to entering the impregnation unit (col 3 ln 26-30) which is infeeding. After passing through the impregnation section the fibers pass through a series of wet out rods (col 3 ln 65-67 - col 4 ln 1-2) which reduce the fibers, through a consolidation and shaping section (col 4 ln 2-5), and pass through a cooling die (col 4 ln 15-16) all in that order. Edwards does not teach that the shaping, consolidation, and cooling sections contain one or more removable and replaceable inserts.

b. Spoo teaches a molding apparatus for pultrusion providing a mold cavity employing a removable insert to define the mold cavity (abstract). The mold device taught by Spoo uses a removably mounted mold insert in a pultrusion process in which the mold insert is clamped to the mold sections to define the

mold cavity (col 1 ln 45-49). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the removable and replaceable mold inserts for a pultrusion die of Spoo to the consolidation, shaping, and cooling dies of Edwards, because the use of removable and replaceable inserts allows for the mold cavity to be changed without fabricating an expensive new die (col 8 ln 52-55), allow for minimal disassembly of the apparatus to change the die sections (col 8 ln 45-47), and permit replacement with a different mold insert with a different shape (col 1 ln 65-68).

c. With regards to claims 3-4 with respect to claim 1, Spoo teaches that the insert for the mold orifice is split into two mold pieces (Fig. 7, elements 60 and 82 represent the two mold inserts which form a whole split mold insert which would have been obvious to use in the consolidation, shaping, and cooling molds as described above).

10. Claims 1 and 3-5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson (PN 5540797) in view of Spoo (PN 5116450).

a. With regards to claim 1, Wilson teaches pultrusion apparatus in which fibers are pulled through a resin impregnation chamber, shaped and cooled. Referring to the figure above by Wilson, Wilson teaches having a fiber preheating section (13), a fiber infeed section (20) which is removable (col 4 ln 48-49) and therefor replaceable, a resin impregnating section (14), a reduction section (23), a consolidation and shaping section (30), and a cooling section (32). Wilson

does not teach that the cooling and shaping sections have one or more removable inserts.

b. Spoo teaches a molding apparatus for pultrusion providing a mold cavity employing a removable insert to define the mold cavity (abstract). The mold device taught by Spoo uses a removably mounted mold insert in a pultrusion process in which the mold insert is clamped to the mold sections to define the mold cavity (col 1 ln 45-49). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the removable and replaceable mold inserts for a pultrusion die of Spoo to the consolidation, shaping, and cooling dies of Wilson, because the use of removable and replaceable inserts allows for the mold cavity to be changed without fabricating an expensive new die (col 8 ln 52-55), allow for minimal disassembly of the apparatus to change the die sections (col 8 ln 45-47), and permit replacement with a different mold insert with a different shape (col 1 ln 65-68).

c. With regards to claims 3-4 with respect to claim 1, Spoo teaches that the insert for the mold orifice is split into two mold pieces (Fig. 7, elements 60 and 82 represent the two mold inserts which form a whole split mold insert which would have been obvious to use in the consolidation, shaping, and cooling molds as described above).

d. With regards to claim 5 with respect to claim 1, Wilson teaches that the fiber infeed section (20 in the figure above by Wilson) is removable (col 4 ln 48-49) and therefor replaceable.

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11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson (PN 5540797) in view of Spoo et al. (PN 5116450) as applied to claim 1 above, and further in view of Mockry (PN 6189285).

a. Wilson in view of Spoo teaches a pultrusion apparatus in which fibers are pulled through a resin impregnation chamber, shaped and cooled. Referring to the figure above by Wilson, Wilson in view of Spoo teaches having a fiber preheating section (13), a fiber infeed section (20) which is removable (col 4 In 48-49) and therefor replaceable, a resin impregnating section (14), a reduction section (23), a consolidation and shaping section (30), and a cooling section (32), in which the cooling and shaping sections have one or more removable inserts. Wilson in view of Spoo does not teach that the reduction section includes a removable and replaceable mandrel.

b. Mockry teaches that in a pultrusion process it is known in the art to produce a plurality of channels in a part from the same outer surface pultrusion die using a series of different mandrel sets (col 5 In 24-26). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a removable and replaceable mandrel in the reduction section of the apparatus taught by Wilson in view of Spoo, because the removable and replaceable mandrel would allow the process to produce a series of different capacity channels in the product (col 5 In 24-26) and by being removable would not limit the apparatus to only being able to produce hollow articles. It would have been obvious to one of ordinary skill in the art at the time the invention was

made to place the mandrel in the reduction section, because this section is where the fibers are brought close together and would require the mandrel to provide a surface on which to begin to form the article.

***Claim Rejections - 35 USC § 112***

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 5 recites the limitation "glass" in the phrase "...wherein the *glass* infeed section..." There is insufficient antecedent basis for this limitation in the claim.

***Drawings***

2. The drawings are objected to because the drawings are too dark to clearly see the disclosed subject matter. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several

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views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Conclusion***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GALEN HAUTH whose telephone number is (571)270-5516. The examiner can normally be reached on Monday to Thursday 7:30am-5:00pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Yao can be reached on (571)272-1224. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GHH/

/Sam Chuan C. Yao/

Supervisory Patent Examiner, Art Unit 4111